

This listing of claims will replace all prior versions,
and listings, of claims in the application:

1 Claim 1 (original): A method for generating traffic
2 information for analysis, the method comprising:
3 a) accepting at least one sample derived from
4 addressed data;
5 b) determining path-centric information based on the
6 accepted at least one sample; and
7 c) adjusting a traffic metric of a traffic parameter
8 based on the determined path-centric information.

1 Claim 2 (original): The method of claim 1 wherein the
2 addressed data is a packet.

1 Claim 3 (original): The method of claim 1 wherein the
2 sample includes information from the header of a packet.

1 Claim 4 (original): The method of claim 1 wherein the act
2 of determining path-centric information based on the
3 accepted at least one sample includes using at least a part
4 of the at least one sample as a search key to find an item
5 with a closest matching key in a data structure.

1 Claim 5 (original): The method of claim 4 wherein the data
2 structure is a searchable data structure selected from a
3 group consisting of (A) a hash table, (B) a binary search
4 tree, and (C) a trie.

1 Claim 6 (original): The method of claim 1 wherein the act
2 of determining path-centric information based on the
3 accepted at least one sample includes:
4 i) using at least a part of the at least one
5 sample as a search key to find a first item with
6 a closest matching key in a first data structure;
7 and
8 ii) using at least a part of the first item
9 found as a search key to find a second item with
10 a matching key in a second data structure.

1 Claim 7 (original): The method of claim 6 wherein the
2 second item includes path-centric information.

1 Claim 8 (original): The method of claim 6 wherein the
2 second item includes an origin autonomous system and a peer
3 autonomous system.

1 Claim 9 (original): The method of claim 6 wherein the
2 second item includes an autonomous system path.

1 Claim 10 (original): The method of claim 6 wherein the
2 first and second data structures are tries.

1 Claim 11 (original): The method of claim 6 wherein the
2 first data structure is a Radix trie.

1 Claim 12 (original): The method of claim 6 wherein the at
2 least a part of the at least one sample used as a search
3 key is an internet protocol prefix.

1 Claim 13 (original): The method of claim 6 wherein the at
2 least a part of the at least one sample used as a search
3 key is at least one of (A) a source address and (B) a
4 destination address.

1 Claim 14 (original): The method of claim 6 wherein the at
2 least a part of the first item found used as a search key
3 is an autonomous system index.

1 Claim 15 (original): The method of claim 1 wherein the
2 sample includes at least two parameters selected from a
3 group parameters consisting of (A) a source address, (B) a
4 destination address, (C) a protocol, (D) a source port, (E)
5 a destination port, (F) an interface number, (G) a type of
6 service, (H) an SNMP index, (I) a kernel logical interface
7 index, and (J) a type of interface indice.

1 Claim 16 (original): The method of claim 1 wherein the
2 path-centric information determined includes an origin
3 autonomous system and a peer autonomous system.

1 Claim 17 (original): The method of claim 1 wherein the
2 path-centric information determined includes an autonomous
3 system path.

1 Claim 18 (original): The method of claim 1 wherein the act
2 of adjusting a traffic metric of a traffic parameter based
3 on the determined path-centric information includes:

4 i) using a part of the determined path-centric
5 information as a key to search items of traffic
6 parameters;

7 ii) if a traffic parameter with a matching key
8 is found, incrementing its traffic metric;
9 iii) if none of the traffic parameters has a
10 matching key, creating a new item.

1 Claim 19 (original): The method of claim 1 wherein the
2 traffic metric adjusted is at least one of (A) a byte count
3 and (B) a packet count.

1 Claim 20 (original): The method of claim 1 wherein the
2 traffic parameter is selected from a group of traffic
3 parameters consisting of (A) a particular pair of source
4 and destination addresses, (B) a particular pair of source
5 and destination ports, and (C) a particular pair of
6 autonomous systems.

1 Claim 21 (currently amended): A method for generating data
2 structures for mapping information in a sample derived from
3 addressed data, to path-centric information, the method
4 comprising:

5 a) using network information, building a first data
6 structure including items of a first type, each of the
7 items of the first type including an autonomous system
8 index and an internet protocol prefix, wherein the
9 internet protocol prefix is a key; and
10 b) using network information, building a second data
11 structure including items of a second type, each of
12 the items of the second type including an autonomous
13 system index and an autonomous system path, wherein
14 the autonomous system index is a key,

15 wherein the first and second data structures
16 may be used for generating traffic information for
17 analysis.

1 Claim 22 (original): The method of claim 21 wherein the
2 first and second data structures are tries.

1 Claim 23 (original): The method of claim 21 wherein the
2 first data structure is a Radix trie.

1 Claim 24 (original): The method of claim 21 wherein the
2 network information was derived from routing information.

1 Claim 25 (original): An apparatus for generating traffic
2 information for analysis, the apparatus comprising:
3 a) an input for accepting at least one sample derived
4 from addressed data;
5 b) means for determining path-centric information
6 based on the accepted at least one sample; and
7 c) means for adjusting a traffic metric of a traffic
8 parameter based on the determined path-centric
9 information.

1 Claim 26 (original): The apparatus of claim 25 wherein the
2 means for determining path-centric information based on the
3 accepted at least one sample include a searching facility,
4 the search facility (i) using at least a part of the at
5 least one sample as a search key to find a first item with
6 a closest matching key in a first data structure, and (ii)
7 using at least a part of the first item found as a search
8 key to find a second item with a matching key in a second
9 data structure.

1 Claim 27 (original): The apparatus of claim 26 wherein the
2 second item includes path-centric information.

1 Claim 28 (original): The apparatus of claim 26 wherein the
2 second item includes an origin autonomous system and a peer
3 autonomous system.

1 Claim 29 (original): The apparatus of claim 26 wherein the
2 second item includes an autonomous system path.

1 Claim 30 (original): The apparatus of claim 25 wherein the
2 means for adjusting a traffic metric of a traffic parameter
3 based on the determined path-centric information include
4 i) a search facility, using a part of the
5 determined path-centric information as a key to
6 search items of traffic parameters; and
7 ii) an aggregator, wherein if a traffic
8 parameter with a matching key is found, the
9 aggregator increments the traffic metric of the
10 traffic parameter, and wherein if none of the
11 traffic parameters has a matching key, the
12 aggregator creates a new item.

1 Claim 31 (original): The apparatus of claim 25 wherein the
2 traffic parameter is selected from a group of traffic
3 parameters consisting of (A) a particular pair of source
4 and destination addresses, (B) a particular pair of source
5 and destination ports, and (C) a particular pair of
6 autonomous systems.

1 Claim 32 (original): A data forwarding device comprising:

2 a) an addressed data forwarding facility for
3 forwarding addressed data based on forwarding
4 information;
5 b) a routing facility for determining and
6 disseminating network state information, and for
7 generating path information based on the network state
8 information;
9 c) a sampler for generating samples based on accepted
10 addressed data;
11 d) means for determining path-centric information
12 based on the samples generated by the sampler; and
13 e) means for adjusting a traffic metric of a traffic
14 parameter based on the determined path-centric
15 information.

1 Claim 33 (original): The data forwarding device of claim
2 32 wherein the routing facility effects a exterior gateway
3 protocol.

1 Claim 34 (original): The data forwarding device of claim
2 32 wherein the routing facility effects a border gateway
3 protocol.

1 Claim 35 (currently amended): A data forwarding device
2 comprising:
3 a) an addressed data forwarding facility for
4 forwarding addressed data based on forwarding
5 information;
6 b) a routing facility for determining and
7 disseminating network state information, and for
8 generating path information based on the network state
9 information;

10 c) means, using the path information generated by the
11 routing facility, for building a first data structure
12 including items of a first type, each of the items of
13 the first type including an autonomous system index
14 and an internet protocol prefix, wherein the internet
15 protocol prefix is a key; and
16 d) means, using the path information generated by the
17 routing facility, for building a second data structure
18 including items of a second type, each of the items of
19 the second type including an autonomous system index
20 and an autonomous system path, wherein the autonomous
21 system index is a key,
22 wherein the first and second data structures may
23 be used for generating traffic information for analysis.

1 Claim 36 (original): The data forwarding device of claim
2 35 further comprising:
3 e) a sampler for generating samples based on accepted
4 addressed data;
5 f) means for determining path-centric information
6 based on (i) the samples generated by the sampler,
7 (ii) the first data structure, and (iii) the second
8 data structure; and
9 g) means for adjusting a traffic metric of a traffic
10 parameter based on the determined path-centric
11 information.

1 Claim 37 (currently amended): A machine-readable medium
2 having stored thereon:
3 a) a first data structure including items of a first
4 type, each of the items of the first type including an
5 autonomous system index and an internet protocol

6 prefix, wherein the internet protocol prefix is a key;
7 and
8 b) a second data structure including items of a
9 second type, each of the items of the second type
10 including an autonomous system index and an autonomous
11 system path, wherein the autonomous system index is a
12 key,
13 wherein the first and second data structures may
14 be used for generating traffic information for analysis.

1 Claim 38 (original): The machine-readable medium of claim
2 37 wherein the first and second data structures are tries.

1 Claim 39 (original): The machine-readable medium of claim
2 37 wherein the first data structure is a Radix trie.

1 Claim 40 (original): The machine-readable medium of claim
2 37 further comprising:
3 c) network information derived from routing
4 information.